IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

TRANSACTION STATUS MESSAGING

5

FIELD OF THE INVENTION

10   The present invention relates generally to information processing systems and more particularly to a methodology and implementation for prompt status messaging between systems regarding pending electronic transactions.

15   ### BACKGROUND OF THE INVENTION

In recent years, an increase in the acceptability and use of various kinds of equipment to access the World Wide Web (the web) has resulted in a rapid expansion of the kinds of
20   services which are being made available on the web. Currently, the many websites are accessible not only with personal computers but also with wireless phones, wireless palm-sized devices and so-called Personal Digital Assistant or PDA devices. This ever-increasing use of the web, and the
25   relative ease with which access to the web can be accomplished, will continue to drive the opening of new websites and new services available on the websites.

One rapidly expanding area on the web is the capability to
30   accomplish complete electronic purchasing transactions and other transactions while "on-line". Such purchasing applications provide the ability for potential buyers to become informed about items and to complete an electronic

transaction by actually ordering one or more items, and authorizing payment for the ordered items in one "on-line" session, using any of the website-accessing devices described above.

5

In accomplishing electronic transactions on the web, there are several areas where improvements are needed. One such area is the manner in which notification of certain aspects of the sale are communicated to the purchaser of an item. In most applications, a purchaser or client will "log-on" to a website that has various items available for sale. The purchaser can then view the items, identify the item to be purchased, and enter information regarding the specific details of the purchase, i.e. the number of units, color, price, etc. The purchaser will also enter information concerning the method of payment and authorization to charge the purchase against a particular charge account identified by the purchaser, and then disconnect from the website. The purchaser may not know if and when the authorized charge has been approved by the designated creditor until the ordered item arrives. In some cases, the purchaser may get a confirmation of the order from the website but even in that case, the confirmation is in the form of an "email". This practice presents a problem to many purchasers who do not regularly check their incoming email. Further, the email typically will indicate a time period during which delivery of the item may be expected, such as "between 2-4 weeks". In many cases, a purchaser will desire to receive the delivery information in a more timely manner.

30

Other aspects of on-line purchases and other on-line electronic transactions should also be communicated to purchasers in a more timely manner. For example, an increasingly popular way to purchase items on-line is

through an on-line "auction" process. There are many formats
available for the implementation of an on-line auction but
in any format, the timeliness of transactional information
related to a purchase bid, relative to other bids, is
5   extremely critical. Nevertheless, bidders are currently
informed that their bid is successful or not successful only
by means of an email which may not arrive until the bidding
process has completed and it is no longer possible for a
purchaser to increase his or her bid.
10

Thus, there is a need for an improved method and apparatus
which may be used to more quickly make a user aware of
developing selected aspects of pending electronic
transactions.
15

SUMMARY OF THE INVENTION

A method and implementing system is provided in which a
20   client is able to initiate an ongoing electronic transaction
between a communication device and a network site. A
separate port is established for the subsequent direct
transmission of transaction status messages from the network
site back to the user device. The client is enabled to
25   customize a signaling system at the user terminal to
designate various signals to correspond to different kinds
of the transaction status messages such that the client is
signaled directly when a transaction status change occurs
with respect to the electronic transaction initiated by the
30   client.

BRIEF DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention can be obtained when the following detailed description of a
5 preferred embodiment is considered in conjunction with the following drawings, in which:

Figure 1 is a diagram of a computer system in which the present invention may be implemented;
10
Figure 2 is a simplified schematic diagram showing selected components and subsystems of the computer system illustrated in Figure 1;

15 Figure 3 is an illustration of a computer system display screen useful in explaining an exemplary operation of the present invention;

Figure 4 is an illustration showing several possible
20 communication paths for messages between a server and a client terminal;

Figure 5 is flow chart illustrating a high level operational sequence utilized in connection with the present invention;
25
Figure 6 is a flow chart illustrating an exemplary operational sequence occurring at a server site in the exemplary embodiment; and

30 Figure 7 is a flow chart illustrating an exemplary operational sequence occurring at a client or user device in the exemplary embodiment.

DETAILED DESCRIPTION

The various methods discussed herein may be implemented within a typical computer system which may include a
5 workstation or personal computer, as well as various kinds of other communications devices such as palm devices, PDA (personal digital assistant) devices and wireless devices. The term "user terminal" as used herein is intended to include any and all such devices and other devices which are
10 able to establish a communication link with a network site as hereinafter explained. In an illustrated example, an implementing system includes one or more processors in a multi-bus computer-based system which may be coupled into a network of similar systems. However, since the workstation
15 or computer system implementing the present invention in an exemplary embodiment, is generally known in the art and composed of electronic components and circuits which are also generally known to those skilled in the art, circuit details beyond those shown in the drawings are not specified
20 to any greater extent than that considered necessary as illustrated, for the understanding and appreciation of the underlying concepts of the present invention and in order not to obfuscate or distract from the teachings of the present invention.
25
In Figure 1, an exemplary client terminal computer system 101 includes an electronics enclosure 103 which is typically arranged for housing one or more CPUs (central processing units) along with other component devices and subsystems of
30 the computer system 101. The computer system 101 also includes a monitor or display unit 105, a keyboard 107 and a mouse or pointing device 109, which are all interconnected within the illustrated computer system. Also shown is a connector 111 which is arranged for connecting a modem or

other network connection within the computer system to a communication line such as a telephone line in the present example. The present invention may also be implemented in a wireless system without the connector 111 or hard-wired

5 through a digital cable.

Several of the major components of the exemplary system 101 are illustrated in Figure 2. A processor circuit 201 is connected to a system bus 203 which may be any host system

10 bus. It is noted that the processing methodology disclosed herein will apply to many different bus and/or network configurations. A cache memory device 205, and a system memory unit 207 are also connected to the bus 203. A modem 209 is arranged for connection 210 to a communication line,

15 such as a telephone line, through a connector 111 (Figure 1). The modem 209, in the present example, selectively enables the computer system 101 to establish a communication link and initiate communication with another computer system, or network or database server. Such a communication

20 link may also be established by other client devices including wireless devices.

The system bus 203 is also connected through an input interface circuit 211 to a keyboard 213 and a mouse or

25 pointing device 215 in the illustrated example. Other input means may also be used in other devices such as menu-driven limited key inputs designed for small screen wireless devices. The bus 203 in the example is also coupled to a separate network subsystem interface 217 and a CD/diskette

30 drive unit 219. A sound producing subsystem 224 is connected to the system bus 203, and a video subsystem 220, which may include a graphics subsystem, is connected to a display device 221. The sound subsystem may be one of several

generally available systems which respond to an input
digital signal to provide various output sounds and/or sound
bytes containing predetermined messages. A storage device
218, which may comprise a hard drive unit or CD ROM, is also
5   coupled to the bus 203. The CD/diskette drive unit 219
provides a means by which individual diskette programs may
be loaded on to the hard drive, or accessed directly, for
selective execution by the computer system 101. As is well
known, program diskettes containing application programs
10   represented by magnetic indicia on the diskette, or programs
in system memory, or acquired through a local network or
through the World Wide Web may be read to provide program
signals. Such program signals are selectively effective to
cause the computer system to present displays on the screen
15   of a display device and respond to user inputs in accordance
with the functional flow of the application program being
executed.

Figure 3 illustrates an exemplary implementation of an audio
20   customization feature of the present invention. In the
example, the audio customization user interface is included
within a browser program but it is understood that the user
interface may also be part of a stand alone application. As
shown, a display device running a browser application
25   presents a screen 301 in a well known format including
various functions 303 and operations 305 which may be
selected by a user or client. The format also includes a
site address block 307 which contains the address of a site
(e.g. "AUCTIONSITE.COM") to which the user is or wishes to
30   be connected. In the example, when a user moves a pointer
indicium 313 and points to and clicks on the "EDIT" function
308 using the pointer control device, an "EDIT" window 319
is presented. The user/client is then able to point and
click on a "PREFERENCES" icon 320 and an "AUDIO ALERTS"

window 323 is presented. In the AUDIO screen 323 a client/user is able to customize the audio signals which will be produced by the sound subsystem 224 (Figure 2). A user, for example, may select an option to enable

5 predetermined audio messages in combination with a two tone leader signal as illustrated. The duration, repetition and termination mode of the audio signals may also be set as illustrated. After a client/user has made the choices to customize the alert messages, the user is then able to move

10 the pointer 324 to point and click on an activation icon 325 which is effective to enter the selected inputs. Thereafter, when an incoming message is detected (as hereinafter explained), the selected alert scheme, which may include an audio voice message, will be executed.

15

As hereinbefore noted, the present invention facilitates and improves the execution of electronic transactions which are initiated between a client terminal device and a website. For purposes of explaining the present invention, an auction

20 site transaction is used in the exemplary embodiment although it is understood that the present invention is applicable to any of many other types of electronic transactions (such as simple sales transactions) which occur between a client and a remote server site. There are

25 currently many auction sites established and accessible on the World Wide Web and there are many kinds of auctions that are offered. In the present example, a so-called "Yankee Auction" format will be referenced. In the Yankee Auction, several identical items are offered for sale at the same

30 time. When the auction is completed, the highest bidders win the auctioned item at their respective bid price. If there are ten items for example, the ten highest bidders win the item at the price input by the respective bidders. The term "item" as used herein means either a product or a service,

and the term "purchase" as used herein also includes the
purchase or license of a hardware or software product.

5   In the present example, after a client has set the audio
preferences (Figure 3), the client will log on to an auction
site (e.g. "AUCTIONSITE.COM" 307) and the auction processing
will begin. Initially, the client or user will "register" by
providing requested information including the account to be
charged for any items purchased. After that information has
10   been entered, the client is then able to view various items
that are being offered at the auction. The user then, for
example, selects the item for which the user wishes to bid
and enters a particular bid. The user then generally exits
the auction website. Typically, in the past, at a designated
15   time, the auction is declared over and if the user's bid is
a winning bid, the user is generally advised of that
situation by email. If the user's bid is not a winning bid,
then no notice is given to the user and the user must log on
to the auction site again to find out what the winning bids
20   were.

The present invention provides a methodology by which the
user is alerted and advised directly when the entered bid is
no longer a winning bid (i.e. another bidder had entered a
25   higher bid) and this allows the user to re-enter the auction
site to place a new bid before the auction is completed.
This is accomplished through code on the server which is
effective, in connection with the bidding process, to
establish or initialize a new direct alert port (separate
30   from the port being used for the initial registration)
between the auction site and the user terminal for the
transmission of messages from the auction site server to the
user terminal. The server code compares the user's bid with
subsequent received bids, and when the user's bid is no

longer winning, the server sends a message to the user
terminal over the assigned separate port to sound the user-
selected audio alert scenario. When the user hears the
alert, the user knows that the user's bid is no longer
5   winning. At that time the user may return to the auction
site to enter a new bid.

The initialization or establishment of a new and separate
alert port by the server for the alert message is
10   illustrated in Figure 4. Typically, in the past, messages
from a server to a user device have been sent by email, for
example, from a server 401 to a user terminal or device 403
through an email server 407. As illustrated, the email is
sent by the server 401 through one port "A" to the email
15   server 407 and then the email is transmitted through another
port "B" to the user terminal 403. The establishment and use
of a new and separate port "C" between the auction server
401 and the user terminal 403 bypasses much processing in
the email server and allows much faster delivery of
20   transaction status messages to the user. In the present
example, port #4003 was selected as port "C" to send alert
messages from an auction server to a user device.

As shown in Figure 5, the high level methodology begins 500
25   by inputting the alert song 501. The alert song includes the
selections made by the user in establishing the user's
preferences (tones, length, frequency and duration) for the
alert signal when it is received from the auction server.
Next the Listener is started 503, and the user device is
30   enabled to "listen for" or detect messages coming in at the
user device on the separate alert port (e.g. port #4003 in
the present example) established by the auction site server
and the initialization ends 505. The "listener" or client-
side code is then enabled to process alert messages to the

listener at the user device via the separate alert port
established by the auction server.

The exemplary methodology executed at the auction server is
5   shown in Figure 6. As illustrated, after the process begins
601, the server accepts auction bids 603 from clients. When
a client bid is received, a check is made to determine if
the previous winning bidder has changed 605 because of the
newly received bid. If the winning bidder has not changed
10 605 then the process returns to accept subsequent bids. It
is understood that in the event of a so-called "Yankee
Auction, this step will determine if any, and how many
previous winning bids are rendered "no longer winning" by
new bids received. If the previous winning bidder has
15 changed 605, a check is then made to determine if the
previous winning bidder is registered to receive an audio
notification 607. If the previous winning bidder has not
been registered to receive audio notification 607, then the
processing returns to continue to receive new bids 603. If
20 the previous winning bidder is registered to receive notice
607, then the previous bidder who no longer has a winning
bid is looked-up in an "alert table" 609 for example, and an
audio alert signal is sent from the auction server site to
the client bidder on a separate alert port 611 (i.e.
25 separate from the port on which the bids are received) which
has been established for this purpose. The auction server
then returns to accept subsequent auction bids 603.

An example of pseudocode which could be used to implement
30 the methodology set forth in Figure 6, for server-side
message processing after bidder change, is set forth below:

*Function AlertGenerate(szUserAddress As String, szBidderIdent,intTimeout As Integer,
strItem# As String)*
35 *' --- Initialize Function Parameters*

```
Dim  EndTime As Date
String strALERT = "AUDIO"
Int  intPort = 4003
```

5

```
'--- Connect to Client on Audio Alert Port

    If  SocketConnect(winSocket1,4003,szUserAddress,intTimeout) =0
    EndTime  =  DateAdd("s",intTimeOut,Now)
```

10

```
    '--- Wait for Client to Acknowlege Connection or TimeOut
    Do
      Do Events
        If  NOW > EndTime   Then Exit Do
      Loop Until BoolClientReady()
```

15

```
'--- Client has responded with a ready indication Send Alert
```

20
```
If  BoolClientReady Then
    SendData winSocket1,intPort, strALERT Code & strItem# & szBidderIdent
    Close winSocket1
```

```
Return
```

25

```
    Function  BoolClientReady()
```

```
    ' This function is called when response data is received from the client; it assumes that
    an response indicates that the client is ready. A more elaborate protocol could be
```
30
```
    established here
```

```
Return True
```

The exemplary user or client terminal methodology is

35   illustrated in Figure 7. As shown, when the processing

begins 701 the listener service is started 703 and the

listener function at the user terminal waits for an alert

message 705 from the auction server through the special

message port (e.g. Port#4003) established by the server. If

40   the message is not received over the alert port, the process

returns to await the next received alert 705. When a message

is received over the designated alert port 707, a check is
made to determine if the alert is intended for the client
terminal 709 and if so, the message is processed to
activate the client-selected audio alert scheme 711, i.e.

5   the alert selections made in Figure 3 are executed.

An example of pseudocode which could be used to implement
the methodology set forth in Figure 7, for client side audio
message initialization, for continuing listening, is set

10   forth below:

Function AlertInitialize(szHostAddress, szUserName,szPassword)
 ' --- Init Occurs to Initialize or Start Client Audio Alert Processing

15   *Dim EndTime As Date*
        Int intPort = 4003
        Integer intTimeOut = 60   ' assime a 60 second timeout value
  ' --- Get predefined Uadio String

20   *Open(szaudioFile) for Input*
        Read AudioData into szAudio

        '--- Connect to Auction and Listen for ALERTs

25   *If SocketConnect(dsSocket1,4003,szHostAddress,intTimeout) =0*
        EndTime = DateAdd("s",intTimeOut,Now)

        '--- Wait for Host to Acknowlege Connection or TimeOut
        Do
30   *Do Events*
          If NOW > EndTime   Then Exit Do
          BoolHostRead= conReady()
         Loop Until boolHostReady

35   *'--- Host has responded with a ready indication Send User id & Password so HOST*
        knows you are legitimate

        If BoolHostReady() Then
          SendData dsSocket1, szUsername, szPassword
40   *BoolHostReady = False*
        ELSE

POST HOST NOT Responding message

Return

5   *Function conReady(()*

'*This function is called when response data is received from the client; it assumes that an response indicates that the client is ready. A more elaborate protocol could be established here*

10   *return True*

```
An example of pseudocode which could be used for client side
alert receipt processing is set forth below:
```

15   *Function AlertReceipt(szHostAddress, szAlertString)*
         '*— Init Occurs to Initialize or Start Client Audio Alert Processing*

         Dim EndTime As Date
         Int intPort = 4003
20   *Integer intTimeOut = 60   ' assime a 60 second timeout value*
         String SzReady = "Ready"

         '*— Wait for a Receive Event*
         Do
25   *Do Events*
          Loop Until boolHostReady

          '*— Host has responded with a request for connection Send Acknowledgement (protocl checking could be included)*
30
          SendData winSocket1, intPort, szReady
          '*— Wait for a Receive Event*
          Do
          Do Events
35   *BoolHostReady=conReady()*
          Loop Until boolHostReady

          Process_Alert_String(szAlertString)   ' Produce Tones Based on User Pref.

40   *Function conReady(()*

'*This function is called when response data is received from the client; it assumes that an response indicates that the client is ready. A more elaborate protocol could be established here*

return True

An exemplary XML (eXtended Markup Language) record of the alert audio effect to be produced at the client device is set forth below:

```
<song tempo = 100>
        <measure>
                <note> A 1 </note>
                <note> C 2 </note>
        <measure>
</song>
```

The above code specifies that, in the example, the audio to be played is the note "A" for 1 beat, followed by the note "C" for 2 beats. As indicated in the flowcharts, this must be done prior to starting the client side processing.

As noted earlier, although the exemplary embodiment illustrates an auction transaction, the disclosed methodology is also applicable to many other electronic transactions which have follow-up aspects to it. For example, the methodology may be implemented to send credit approval or disapproval information to a bidder, or in a straight sales transaction, delivery date or other current shipment or delay information may be sent to a buyer by means of a separately set up message communication port. The audio alert aspect of the present invention is especially useful in situations where the user enters a bid and then continues "surfing" at other sites on the web, or where the bid is entered with a hand-held device which is pocketed after the entry of the bid. In both cases, the audio alert will alert the user who may not be paying particular attention to the auction site for developments. Further, it

is noted that the alert may be in the form of an audio voice byte with a predetermined message. For example, the audio alert scheme may be selected to sound two tone sounds followed by a playback of a voice recording stating that

5 "Your bid is no longer a winning bid". In one embodiment, the recorded message may be one created or dictated by the user into the communication device at the time the bid is entered. Further, separate ports may be created for separate items which are bid upon, and the ports can be tied into

10 custom recordings. In that case, separate messages may result in separate play-backs, one stating that "Your bid for the 25 inch television is no longer a winning bid" and another stating that "Your bid for the DVD player is no longer a winning bid".

15

The method and apparatus of the present invention has been described in connection with a preferred embodiment as disclosed herein. The disclosed methodology may be implemented in a wide range of sequences, menus and screen

20 designs to accomplish the desired results as herein illustrated. Although an embodiment of the present invention has been shown and described in detail herein, along with certain variants thereof, many other varied embodiments that incorporate the teachings of the invention may be easily

25 constructed by those skilled in the art, and even included or integrated into a processor or CPU or other larger system integrated circuit or chip. The disclosed methodology may also be implemented solely in program code stored on a CD or diskette or other memory device, from which it may be

30 accessed and executed to achieve the beneficial results as described herein. Accordingly, the present invention is not intended to be limited to the specific form set forth herein, but on the contrary, it is intended to cover such alternatives, modifications, and equivalents, as can be

reasonably included within the spirit and scope of the invention.